

THE MOTOR AGE

THE AUTOMOBILE AUTHORITY OF AMERICA

VOL. II.

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FLINT'S MOTOCYCLE DEAL

New York, May 5.—Something is up between Charles R. Flint and the American Bicycle Company—just exactly what your correspondent is unable to tell you until he has had a chance to more fully investigate the story.

The last Motor Age tells the story of the formation by Flint of the Motor Cycle Co.

Your correspondent made every effort to learn the full particulars in time for last issue. In fact, he forwarded a story at the last moment, evidently too late for publication, that he had learned at Mr. Flint's office that the company would

make motor tricycles exclusively and that an order for one thousand of them had been given out. No information as to who was to make them or what motor was to be used would be given at the great trust maker's office without his special permission, which could not then be obtained.

Inquiry yesterday among parts makers and motorcycle manufacturers failed to result in even a hint of the concern which had secured the contract.

Finally the Motor Age man again stormed the lion's den and got from Mr. Flint a reply by message that the Ameri-

can Bicycle Co. was to build the machines and that the Lawson motor was the one to be used.

No further particulars were vouchsafed.

Your correspondent was unable to obtain today an interview with any A. B. C. representative, but the refusal of a gentleman connected with the trust in a legal capacity to give any information whatever, coupled with his significant manner of refusing to answer any questions save to say that the deal had been under way some time, leads to the inference that the relations between the two companies are probably something more than those of mere maker and contractor.

It will be remembered that several weeks ago an A. B. C. official, in reply to your correspondent's query as to the truth of the report that the Western Wheel Works had completed a deal to manufacture motorcycles with the Lawson motor, said that the Chicago factory had agreed with Lawson on a price, at which it would manufacture for him motorcycles fitted with his motors, but that there had been no order for any specified number. This now may prove to have been a close, evasive answer to steer your correspondent off from the present big deal.

Much stress was also laid by this official, who is close to the motor-vehicle department, in the motor tricycles that were to be built at the Cleveland factory, fitted with the Burwell motors.

Your correspondent goes thus particularly into detail, believing that some big deal is one between Flint and the A. B. C. which will prove of considerable moment to the automobile industry. Flint never fools with little things, and Flint is in a position to make a better deal with the A. B. C. than any other cycle manufacturing concern in the country.

The great success of the Waltham Mfg. Co. in the motor-vehicle line and the eagerness of cycle dealers to secure Orient agencies for the motorcycle agencies that go with them have undoubtedly opened the eyes of bicycle makers to the advantage of motorcycles as side lines.

The motor-vehicle patent referred to is U. S. Patent No. 633,014, granted to Henry John Lawson, of London, England, September 12, 1899.

The objects of the invention and its principal features are set forth in the patent specification as follows:

"The object of this invention is to construct a wheel with a motor and a driving gear attached which may be readily applied to any existing cycle fork with as little alteration to the fork as possible, thus enabling the owner of a bicycle to convert his machine into a motor-cycle at a comparatively small cost. This complete driving device will hereinafter be referred to as the 'motor wheel.'

"Although the above is the principal object of this invention, the same form of motor-wheel may be made more heavily to suit other vehicles besides cycles and may, if desired, be used to drive other machinery instead of itself running upon the road.

"The principal features of this invention are that the wheel hereinafter called the 'driving' or 'road' wheel is provided with a hollow axle or hub free to revolve in ball-bearings formed one at each end of the hub in a lug adapted for attachment to the blade of a cycle fork. A motor is arranged on one side of the wheel, and the motor-shaft passing through the hollow hub of the wheel and extending beyond the farther side of the same is provided with a flywheel, which acts as a counterpoise to the motor. The motor-shaft is connected to and drives the road wheel by means of a simple form of speed-reducing gear."

The invention has further reference to details connected with motor-vehicles or cycles formed by the application of a motor-wheel to an ordinary cycle or vehicle.

The claims for it are:

"1. In a motor-driving apparatus, the combination with a driving-wheel, of a motor mounted at one side of it, a motor-shaft bearing on the driving-wheel for the motor-shaft, a rigid member connecting the motor-cylinder with the motor-shaft, a flywheel operatively connected with the driving-wheel and at the other side of it, and speed-gear operatively connecting the motor-shaft and the driving-wheel; substantially as set forth.

"2. In a motor-driving apparatus, the combination with a driving-wheel, of a hollow axle or hub therefor, a motor mounted at one side of that wheel, a mo-

tor-shaft passed through the hub, bearings on the hub from the motor-shaft, rigid member connecting the motor-cylinder with the motor-shaft, a flywheel mounted concentrically with the driving-wheel and at the other end of it and operatively connected with the motor-shaft and the driving-wheel; substantially as set forth.

"3. In a motor-driving apparatus, the combination with a driving-wheel, of a hollow axle or hub, bearings to support that hub, a motor mounted at one side of the driving-wheel, a motor-shaft extending through the hub-bearings on the hub for the motor-shaft, a rigid member connecting the motor-cylinder with the motor-shaft, a flywheel operatively connected with the motor-shaft and concentric with the driving-wheel and at the side thereof opposite to that at which the motor is placed, a central pinion on the motor-shaft, a gear-wheel pivoted on the hub and geared with the pinion, and an annular gear-ring geared with that gear-wheel; substantially as set forth.

"4. In a motor-driving apparatus, the combination with a driving-wheel, of a hollow axle or hub, bearings to support that hub, a motor mounted at one side of the driving-wheel, a motor-shaft extending through the hub, bearings on the hub for the motor-shaft, a rigid member connecting the motor cylinder with the motor-shaft, a flywheel operatively connected with the motor-shaft and concentric with the driving-wheel, and at the side thereof opposite to that at which the motor is placed, a central pinion on the motor-shaft, a gear-wheel pivoted on the hub and geared with the pinion, and annular gear-wheel geared also with the said pivoted wheel, and means for controlling the rotation of the annular wheel, for the purpose set forth."

Later Information

New York, May 7.—Your correspondent ran across a chance piece of information today obtained in a way that gave the innocent one, who let the cat out of the bag, no opportunity to use deception that leads strongly to the inference that Flint's Motor Cycle Co. may be intended to be, if it is not actually now, a practical part of the American Bicycle Co., or at least that the A. B. C. and the Motor

Cycle Co. probably do not bear merely the independent relations of builder and contractor.

It would be unfair to Motor Age's innocent and chance informer to detail the conversation leading to this inference.

Without disclosing the information he possessed your correspondent called on a member of the A. B. C. staff said to be prominently connected with the automobile department and to be slated for direct connection with the motor tricycle manufacturing branch.

He declared he knew nothing of any Motor Cycle Co. beyond what he had formerly admitted in reference to the company's having agreed to build motors for Lawson. He had previously mentioned the Western Wheel Works factory in this connection; but today declared he did not know at what factory they were to be built, though he finally admitted he now understood the order was for 1,000 tricycles.

Whether this statement was the frank truth or was an excusable prevarication from the exigencies of business reticence is, of course, mere guessing. He is quoted for what his statement is worth.

At Flint's patent exploitation company it was easy to see that one officer, at least, knew all about the Motor Cycle Co., but he courteously explained that he was naturally not at liberty to open his mouth on the subject.

Your correspondent, however, learned positively that no stock had yet been issued and that the company was really only in the first stages of organization.

It is a mere guess, of course, that, perhaps, Mr. Flint bought Lawson's patent, saw a chance to use it by organizing the Motor Cycle Co., got the A. B. C. in the new company and finally being so pleased with this new line of business that he organized the Patents Exploitation Co. for the purpose of acquiring other patents as the foundation of the formation of similar companies to manufacture or lease the inventions with the possible ultimate intention of combining them in a big automobile company of the trust order.

Of course this latter is all mere guessing, but it is certainly excusable guessing in view of the connection of Flint and the A. B. C. in the matter and the mys-

terious refusal of all parties concerned to tell any particulars of the A. B. C.-Motor Cycle Co. relations.

Chicago Information

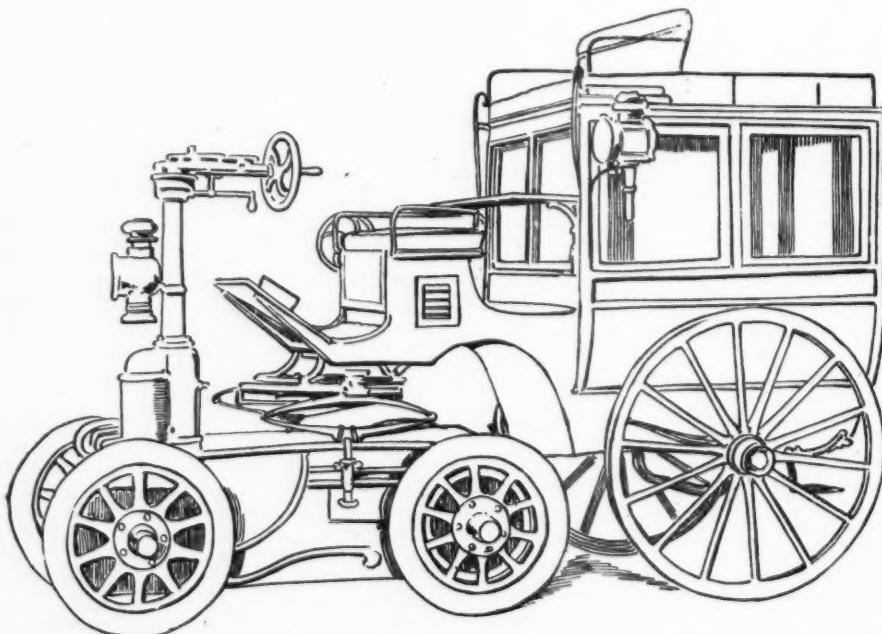
President Coleman and Vice-President Bromley of the American Bicycle Co. were in Chicago the fore part of the present week and were in consultation with J. W. Kiser and R. Philip Gormully, other prominent factors in the trust.

Interviewed by a Motor Age representative, Mr. Coleman said that he had been in Chicago for some days for the purpose of investigating the manufacture of motorcycles at the Western Wheel Works factory. He said that there was a great future, in his estimation, for the motorcycle. When questioned as to particulars, Mr. Coleman refused to talk further.

HEILMANN'S FORECARRIAGE

The accompanying illustration shows a forecarriage, or "bogie," as it is termed by its inventor, J. J. Heilmann, a Frenchman. The device is adapted to be attached to any four-wheeled vehicle by

provided for the purpose. All the different operations necessary to the control of the forecarriage are controlled by the one lever shown in the illustration. By an ingenious arrangement this lever



removing the forward wheels. In the illustration it is shown attached to a theater bus. The "bogie" is driven by two motors operating the two rear wheels of the attachment. The battery is carried in a box between the two axles and to be removed is lowered into a special pit,

remains in almost the same position relative to the driver, even when the vehicle is being turned.

The springs, which support the lower part of the fifth wheel on which the vehicle to be drawn rests are adjustable longitudinally, so that the rear wheels of

the forecarriage may not interfere with the drawn vehicle.

In order to adapt it to be attached to any vehicle, the lower part of the fifth wheel—or the part on the forecarriage itself—is composed of two arcs which are adjustable to a greater or less diameter. As this fifth wheel part rests on the longitudinally adjustable springs, it will be seen that almost any carriage can be attached to the "bogie."

Numerous attempts have been made to construct a device which would comprise the necessary motor mechanism in a form to be used in place of the front wheels

of an ordinary vehicle. Most of these attempts have resulted in the construction of a one or two-wheeled device which must of necessity place a considerable amount of strain on the vehicle being drawn, a strain which the ordinary vehicle is not adapted to withstand. It is, moreover, no easy task to place the amount of mechanism necessary to draw a carriage or other vehicle on one axle. Mr. Heilmann has evidently taken the proper stand in making his forecarriage capable of being navigated by itself, if forecarriages of any sort prove to be useful. At best they can serve only as make-shifts.

TO AND FROM EDITOR AND READER

PROPORTIONS OF BORE AND STROKE

Editor the Motor Age:

For an automobile gas engine what is the most effective proportion of cylinder stroke and bore? Should the cylinder be small in diameter and long of stroke or should the stroke and diameter be about the same?—G. L. Alward, Kansas City, Mo.

Practice favors the keeping of bore and stroke nearly equal, although some engines with a long stroke have been successful. Consult any one of the nume-

rous books on gas engines. G. D. Hiscock's work is a good one.—Ed.



WANTS A GASOLINE OMNIBUS

Editor the Motor Age:

We have a customer in view who wishes to get an automobile omnibus built on the order of a wagonette or bus to carry twelve or fifteen passengers and to cost between \$2,500 and \$3,000. It must be one that can be guaranteed in every respect and use gasoline as motive power.

If you can give us the address of any

NOTE—To make clear the functions of this department of the Motor Age which has become a fixture, under the above caption, the editor begs to state that all subscribers of the paper are at full liberty to take advantage of it to ask any and all questions pertinent to the scope of the paper, which questions he will answer to the best of his ability, either in print or by personal letter—the former when the questions are of such a character that they or their answers may prove interesting to the general reader, and the latter when such is not the case.

Communications of a character generally interesting are also welcome.

Correspondents are requested, however, to make their communications as short and to the point as possible. It is not necessary

for them to eulogize the Motor Age or to flatter the editor in order to secure answers to questions or the publication of interesting letters. The well known modesty of the editor would prohibit the publication of such parts of the letters, in any event.

To receive attention correspondents must sign their names and addresses, which, however, will be omitted from published letters, if the correspondent so requests. It is the editor's desire, however, to make this a department in which readers of the Motor Age will feel glad to come before the motor-vehicle public without concealment.

The editor will be grateful for the correction of any mistakes that may creep in, as well as for suggestions from readers, whether pertinent to this department or other portions of the paper.—Ed.

firm that can make an automobile of that description we will consider it a favor.—Sedalia Cycle Co., 511 Ohio Street, Sedalia, Mo.

There are no firms in this country making gasoline omnibuses, anything of that kind being made to order. Such manufacturers as are in a position to build a vehicle of this description will do well to communicate with the Sedalia Cycle Co.—Ed.

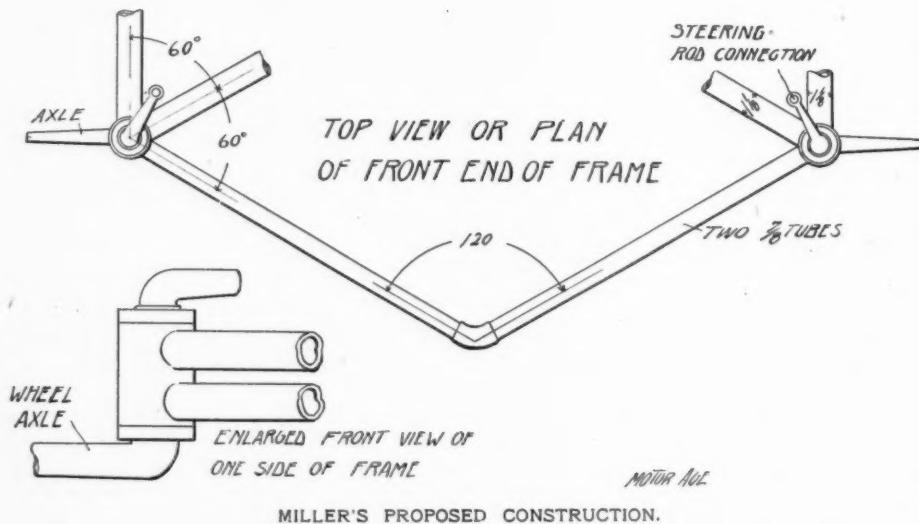
TO USE BICYCLE HANGERS

Editor the Motor Age:

I am building a gasoline runabout to carry two persons. The machine when

other to act as axle for the wheel. Do you consider the scheme feasible and will the hangers be sufficiently heavy for the purpose? By using these hangers the entire steering knuckle may be removed with the wheel or the wheel alone may be taken from the axle.—B. E. Miller, Salt Lake City, Utah.

Feasible is a very large word. Yes, the adaptation is doubtless feasible, but whether it is desirable is another question. The triangular gasoline tank in front is all right. It might be made diamond shaped, however, and, in either case, would probably be best if kept below the sill of the carriage. The shape



completed will weigh in the neighborhood of six hundred pounds. Instead of having the front or dashboard of the box square I am making it wedge shape to hold a triangular gasoline tank, and for the steering knuckles am thinking of using a pair of Fauber one-piece bicycle crank hangers in the manner shown in the accompanying sketch. I will utilize the crank box and bearings* just as they are, as the bracket gives the proper tube angles and connections for my purpose. Instead of the one-piece crank shaft used in the regular bicycle hanger I will fit a one-piece crank and shaft with a short crank arm at one end for the steering rod connection and a stout crank arm at the

of the dash will make the atmospheric resistance less. No provision appears to be made, however, for the vertical play of the front wheels, and, unless the vehicle is used only on the best of roads, the absence of any such arrangement will result in racking the entire running gear and bring it to an untimely end. Various methods of accomplishing this have been described and illustrated in the Motor Age from time to time.

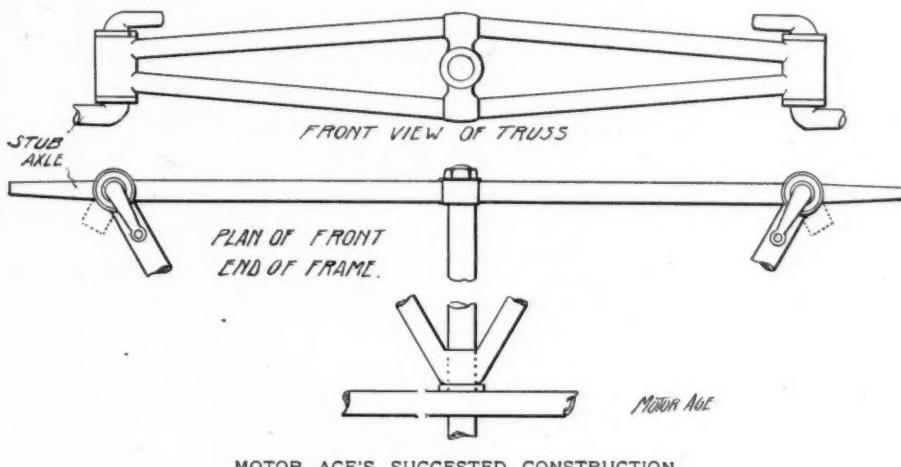
The severe side stresses to which a motor-vehicle is subjected will also tend to distort the forward part of the framework.

If Mr. Miller is set on using the Fauber hanger for steering knuckles, let him

consider the plan shown in the annexed sketch. The suggestion includes the abandoning of one of the lugs, which should be cut off and the hole left plugged up.

Utilize the two lugs used for the lower rear stays in a bicycle as the basis for constructing a truss to take the place of

piece of heavy tubing. This collar should be set against a lug to give it stability and could be slid over the forward end of the longitudinal piece of tubing before the shoulder thereon is bolted to the forward truss. This is a rational construction and would make a substantial running gear.



MOTOR AGE'S SUGGESTED CONSTRUCTION.

the ordinary front axle, as shown in the sketch. Bore the central member of this truss for the reception of a shoulder on the end of a heavy piece of tubing, which should be integral with the rear portion of the running gear. Hold it in place with a nut. From the lugs used for the seat-mast, lead back two stays and attach them to a collar on the longitudinal

Of course the size of the stub axles that could be utilized in connection with Faußer hangers would not do for vehicles of any great weight, but should be strong enough for a 600-pound carriage.

Mr. Miller could easily construct a light framework to hold his triangular gasoline tank independent of the front axle.
—Ed.

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THE NEW YORK & OHIO COMPANY's vehicle

A representative of the Motor Age recently had the opportunity to take a ride of considerable length in one of the first vehicles turned out by the New York & Ohio Co. of Warren, O., with J. W. Packard, vice-president and manager of the company. The vehicle behaved admirably, there being no noticeable vibration, although the carriage employs only a single cylinder motor, and no perceptible odor. Grades of considerable pitch were

negotiated without resorting to the use of the hill climbing gear and the engine appeared to be under perfect control, varying the speed of the carriage from six or eight miles an hour up to eighteen or twenty without change in the gearing.

The first of the two accompanying illustrations shows the complete carriage, which differs considerably in appearance from the ordinary motor-vehicle. Mr.

Packard is authority for the statement that the company has sought, rather than otherwise, to make their vehicles appear different from the ordinary horse-drawn carriages with their "horse wanted" appearance, and to construct a sensible and practical vehicle for use on American roads. To this end they have given the matter careful study, and, although the major portion of their business is in electrical work, have devoted their energies in the automobile department to the

any desired load can be applied. A tachometer is attached to the engine, indicating at all times the exact speed. A skeleton body and running gear is provided, as shown in the illustration, to which each engine is, in turn, fitted; while on this tester numerous indicator cards are taken from each engine. The machine is run under varying loads and speeds for one or two days on this testing machine, and is then taken out, with the skeleton body, for a further and final test on the road.



NEW YORK & OHIO COMPANY'S GASOLINE VEHICLE.

production of gasoline automobiles because they believe them to be the most practical all-around vehicles for use in this country.

One of the interesting features to be seen in the factory at Warren is the testing apparatus shown in the second illustration. As is clearly seen, the rear or driving wheels of the vehicle under test are supported on a pair of endless belts running over pulleys on two parallel shafts. One of these shafts is provided with a brake pulley by means of which

Thus, when the highly finished body of the carriage is fitted, all of the mechanism has been thoroughly tested out and is in perfect running order.

Returning to the vehicle itself, a description of the leading features is in order, a description which will be supplemented, at an early day, by a more extended one, dealing more with the details of mechanical construction.

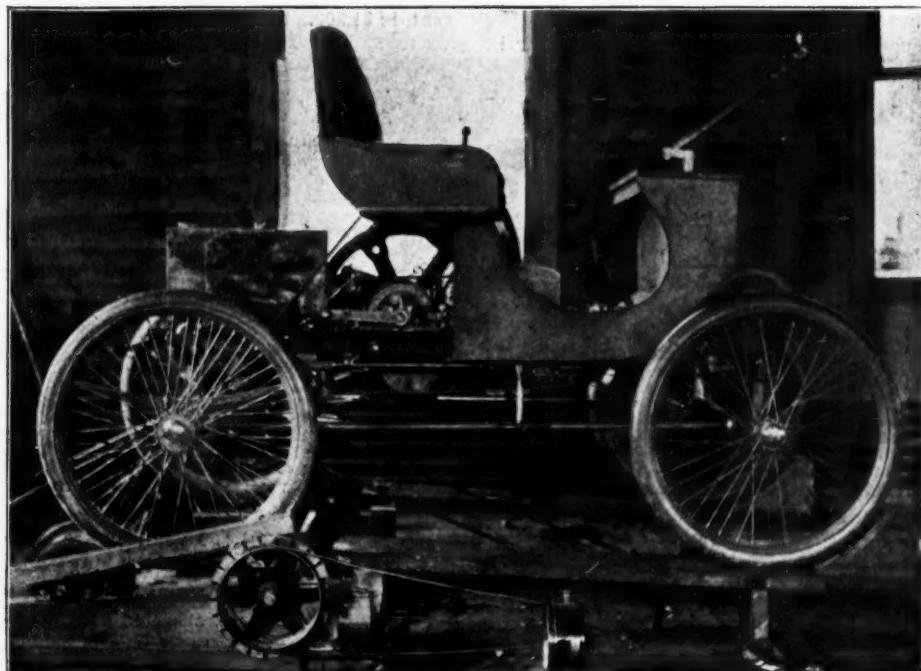
The wheels are of the wire suspension variety, with steel rims, having flat base and flaring edges and three-inch pneu-

matic tires. The wheels are thirty-four inches in diameter, both front and rear, and the gauge four feet 8½ inches, the same as ordinary road vehicles, a construction adopted to enable users of the vehicles to take advantage of the beaten tracks on country roads.

The engine is a nine horsepower, single-cylinder, horizontal, variable speed gasoline motor. The electric ignition is accomplished through the aid of dry batteries, an induction coil and a jump spark. A reserve set of batteries is pro-

by a spring transmission, giving a slight flexibility to prevent binding of the bearings or any "kick" from the engine being communicated to the gears and the carriage.

One of the most noteworthy features of the carriage is the water cooling device—the engine is water-cooled. Only four gallons of water are carried and yet there is no necessity for replenishing frequently. Under the footboard of the carriage are provided radiators for cooling the water. These radiators present a total surface of



NEW YORK & OHIO COMPANY'S TESTING APPARATUS.

vided to obviate the possibility of getting stalled by failure of the batteries in use. The change of speed in the engine is obtained by varying the time of ignition, the operation being governed by a pedal operated by the right foot. The carbureter is of the float feed variety and the company claims that it is unaffected by heat or cold or by humidity in the atmosphere. The gasoline tank holds enough fuel for a run of 100 to 150 miles, according to conditions of the roads.

The engine shaft is very short and is connected with the clutch and gear shaft

sixty square feet and the water is cooled as fast as heat is generated. Both water and gasoline tanks are provided with glass gauges.

The oiling of all important bearings is done with a single oil box of large capacity and a single lever is provided to shut off and turn on all oilers. Thus certainty of oiling is secured and the annoyance of frequent attention is obviated.

A gear and chain drive is used. Two speeds forward and one slow speed backward are provided, which, with the change in speed of the engine, give prac-

tically any speed from six to twenty miles forward and from six to ten backward.

The two forward speeds, reverse and a brake are controlled by one lever, and each operation can be performed without passing through any intermediate function. Thus, if the brake has been applied and the carriage is still running at considerable speed, the high gear can be at once thrown in without any fear of unpleasant or dangerous check to the speed. Under all ordinary conditions the high speed gear is used, as, with the change in the speed of the engine, all desirable speeds are obtainable. With this gear in

mesh there are no idle gears or clutches in action to be dragged by the engine, thus saving power and noise.

The steering is performed by a lever in the left hand. In addition to the brake operated by hand, there is a second foot brake.

Ample mudguards are provided, designed for utility rather than appearance.

The body of the carriage is handsomely finished in every respect. There is no leather dash, but instead a boot or box forming a part of the body, for the reception of parcels, waterproofs, etc.

The price of the vehicle, with single seat, is \$1,200. Extra dos-a-dos seat is \$50 extra and leather hood the same.

THE CENTURY MOTOR-VEHICLE CO.

The Century Motor Vehicle Co. has been recently incorporated at Albany to manufacture motor vehicles propelled by steam, electricity and gasoline.

The incorporators are Charles F. Saul, president; Charles Listman, vice-president; Charles A. Bridgman, secretary-treasurer; H. C. Plumb and William Van Wagoner, managers. The machines will be manufactured under the patents of the last named.

Mr. Saul and Mr. Bridgman were respectively president and secretary-treasurer of the Barnes Cycle Co., before the business was sold to the American Bicycle Co. Mr. Van Wagoner was the general superintendent of the Barnes Cycle Co., and remained with the American Bicycle Co. until March 1, when he resigned his position to perfect the organization of the Motor Vehicle company.

The company write that they have engaged a corps of skilled mechanics and that it is their intention to employ none but the most skilled workmen and use the best of material. They have leased a manufacturing building at 519 East Water Street, Syracuse, which they have rapidly equipping, and have a number of vehicles on the floor and in the course of construction.

All the vehicles are propelled by a pair of bevel gears on the rear axle, and the motor is suspended from the body toward the front end.

In the electric vehicles a double reduction system of gearing is used, there being a pair of spur gears at the motor end of the gear shaft in addition to the bevel gears on the rear axle.

The frames of all the vehicles are constructed of seamless steel tubing and forgings, ball bearings being used throughout. The frame is flexible, to allow for inequalities in the road. The entire driving mechanism or power transmission is enclosed and is dust proof.

In the electric vehicles, forty-six cells of battery are used, which are arranged in six trays, and the battery connections to the controller allow of three speeds forward, three backward and the stopping point, which is also the charging position.

The steam vehicles are fitted with a dust-proof self-oiling enclosed-crank-case engine, made by the Century people from their own designs. The engine hangs from two triangular links which are pivoted to the lower side of the body, allowing the engine to rock in both directions to accommodate varying weights in

the body and movement caused by uneven roads. Although the transmission, which is by means of a bevel gear on the rear axle, is flexible, it is a positive driving movement without any back-lash such as occurs when driving the vehicle by means of a chain.

The running gear and wheels are of the same construction and design as those used in their electric and gasoline propelled vehicles; but in the No. 1 steam vehicle it is of lighter construction. The designers have been careful to leave large accommodation for water and gasoline supply.

The rear axle is constructed so there is

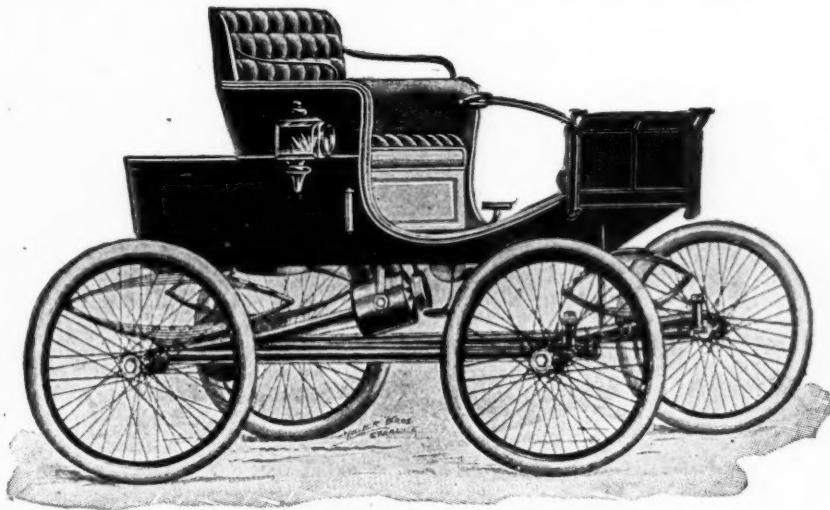
connected with the engine and has adjustable ball bearings at each end.

The boiler is of the vertical fire tube type, such as has given best satisfaction up to the present time; however, there have been a few minor changes made which improve the operation, adjustment and control of the boiler and its regulating mechanism.

The engine is controlled by means of the same handle that steers the vehicle.

Some of the details of construction are as follows:

Running gear, tubular construction; wheel base sixty-three inches and track fifty-two inches; steel wire spoked wheels



NUMBER 1 "CENTURY" STEAM VEHICLE.

no broken joint at the center of the axle, the core of the same being a solid shaft of a special quality of steel, which runs entirely through the axle sleeves and hubs.

The hubs are not attached to this core, but are attached to the outer ends of the axle sleeves, the inner ends of the sleeves being attached to the compensating gears. This makes a very rigid axle without being trussed, and has a much plainer and neater appearance, and the gear case is free to revolve on the outer sleeves of the rear axle and as an adjustment for the bevel driving gears, so the latter are adjustable in both directions to mesh the teeth properly.

The gear shaft that runs forward from the gear case to the engine is directly

and wood rims; pneumatic tires thirty-two by 2½ inches, front and rear.

Boiler, steel shell and heads and copper tubes, tested to 700 pounds cold water pressure; running pressure 225 pounds; steam and air gauge; water gauge and automatic fire and water controlling mechanism.

Band brake, operated by foot lever; combination steering and engine controlling lever.

Orders for steam vehicles of this style can be filled in about thirty days, and for electric vehicles, style number one, in about twenty days.

The gasoline propelled vehicles have the engine arranged inside the rear of the body, and the changeable speed gear is pivoted to the body, transmitting the

power to the rear axle by means of a gear shaft and bevel gears, similar to that used in the other two styles of vehicles. These are also dust proof.

The wagon gear (or frame and wheels) are made by the Century company from their own designs, and is one of their special features. The motor used in the electric vehicle is specially made for them from their own designs; and the motor controller is made in their own factory, being a very simple and efficient arrangement of knife switches, which do not "arc" when the speed is changed.

All the vehicles are steered and the

speed controlled by means of one steering lever. The brake on all the vehicles is a band brake, operated by foot lever. The majority of the vehicles will be fitted with wire wheels and pneumatic tires, although, in special cases, delivery wagons will be fitted with wooden wheels and solid rubber tires.

Their illustrated catalogue, showing nine styles of their vehicles, is now in the hands of the publishers, and will be issued within a few days. The special facilities of the factory are such that orders can be filled in a reasonable length of time.

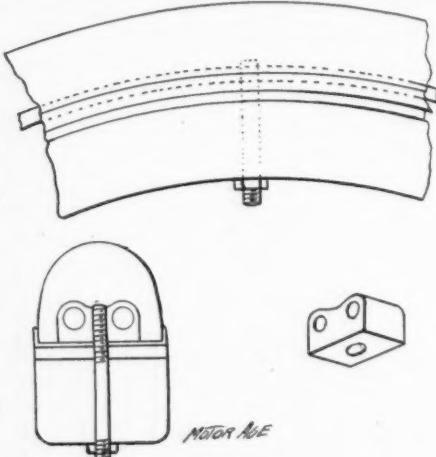
WEEKLY PATENT OFFICE BUDGET

SORUP'S VEHICLE TIRE

Letters Patent No. 646,537, to John G. Sorup, Tiffin, O.

Another vehicle tire retaining device. In this case the solid rubber tire is seated in a rim of the ordinary construction. The tire is made with a semi-circular recess near its base. A series of hollow, metallic

members which are provided with rectangular heads to slide through the hollow metallic members where the latter telescope and hold them in position.

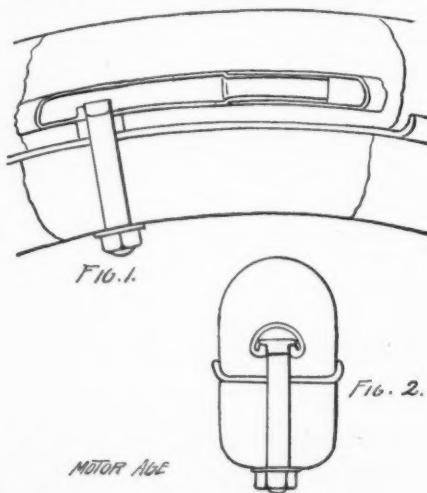


Sorup's Tire.

members of semi-circular section are provided to fit in the recess of the tire. These metallic members are made so that their ends will telescope one into another. They are retained in this position

POFFENBERGER'S VEHICLE TIRE

Letters Patent No. 646,524, to Ira Poffenberger, Urbana, O., assignor of two-



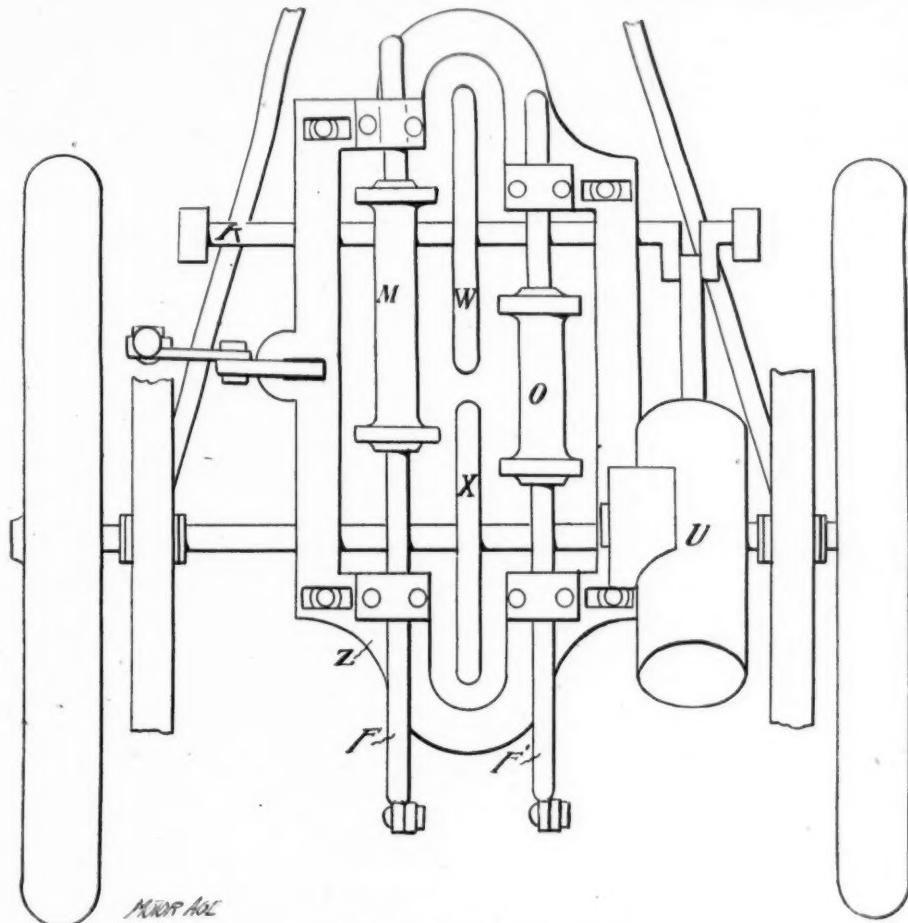
Poffenberger's Tire.

thirds to Stephen B. Payne and Thomas J. Frank, same place.

Still another vehicle tire retaining de-

vice. In this case the usual retaining wires are used, but they are secured to the rim and felly by a series of blocks setting in recesses in the tire and bored to receive the wires and also threaded to receive bolts which pass through the rim and felly, these bolts being held in place

traction wheel shaft carries another friction wheel X. The frame Z carries the shafts F and F', which are longitudinally slideable in this frame Z. These shafts F and F' carry the spools M and O designed to engage the two friction wheels W and X. The frame Z, carrying the shafts F



CRAMER'S FRICTION TRANSMISSION.

by nuts on the inner periphery of the felly.

•

FRICTION TRANSMISSION DEVICE

Letters Patent No. 648,654, to Howard Cramer, Newberry, Pa., assignor of one-half to Thomas M. Robbins, Williamsport, Pa.

In the illustration, U represents an oscillating engine which actuates, in the usual manner, the friction wheel W. The

and F', is transversely slideable so as to bring one or the other of the spools M and O into contact with the friction wheels W and X, giving a forward or backward motion to the vehicle. The speed is regulated by the longitudinal motion of the shafts F and F' which brings the flanges of the spools M and O into varying positions of contact with the friction wheels W and X.

The patent also covers a method of rigidly attaching wheel hubs to revolving

shafts by means of cog-cones on the shaft and corresponding recesses in the hubs. Three claims are allowed.

BEFORE APPLYING FOR PATENTS

Mechanical men, before applying for patents on any device applicable to motor-vehicles, will save a world of trouble, and, in many cases, a deal of money, by being provided with a copy of Allen's Digest of Automobile Patents, an exhaustive history of all patents up to July 1, 1899. With the weekly supplements, this digest is kept constantly up to date. For further particulars, see display advertisement.

SELF PUMPING PNEUMATIC WHEEL

Letters Patent No. 648,408 to William Hayes, Boston, Mass.

Mr. Hayes describes a device whereby a pump is fixed radially to a pneumatic tired wheel. The business end of the pump is connected with the valve of the tire and the piston is provided with mechanism for engaging a cam at the hub of the wheel. In this manner the revolving of the wheel actuates the piston and the tire is pumped. Four claims are allowed.

HOW TO SAVE MONEY

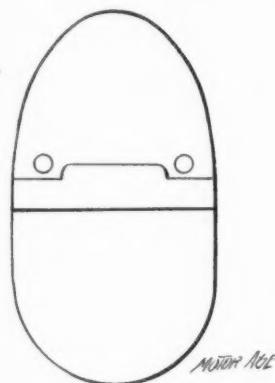
Many a man has wasted time and money in perfecting devices that have al-

ready been perfected, only to learn, when applying for a patent, that he has been anticipated. This can be avoided, as far as motor-vehicles are concerned, by having a copy of Allen's Digest of Automobile Patents. See display advertisement on another page.

SEIBERLING'S VEHICLE TIRE

Letters Patent No. 646,635, to Frank Seiberling, Akron, O.

Another one of this well known tire



Seiberling's Tire.

maker's patents. The illustration gives a clear idea of the construction. Three claims are allowed.

BRITISH 1,000-MILES TRIAL

The British 1,000-mile trial is still progressing successfully and causing a vast amount of enthusiasm along its route. A feature is the surprisingly small number of break-downs on the route. The details are contained in the following dispatches to the New York Herald, a paper which is devoting a great amount of attention to automobilism:

Manchester to Carlisle

London, May 1.—Fifty-three automobiles yesterday left the Botanical Gar-

dens, Manchester, where they had passed Sunday, for the run to Kendal.

The chief incident of the day was the optional hill climbing trial from Mint Bridge, Kendal, to the summit of Shap Fell, eight miles and three-quarters, with a rise of about 1,145 feet. The steepest gradient on the incline is one in ten.

No fewer than twenty-nine of the cars in the trial successfully reached the summit.

London, May 2.—Nothing could have

been more enjoyable than the run yesterday from Kendal to Carlisle, a distance of sixty-two miles.

The Daily Express correspondent says: "We did not take the orthodox road over Shap Fell, but made a welcome detour through Lakeland.

"At the foot of Dunmail Raise began the hill climbing competition, the distance being just over 2,000 yards.

"The steepest portion has a gradient of 1 in 8½, extending over 167 yards. There are also 168 yards where the gradient is one in eleven.

"Some cars had to take a zigzag course in order to get up, but by others the ascent was easily surmounted.

"The Napier car went up in about eight minutes, for example, which is at the rate of twelve miles an hour.

Voiturettes a Great Surprise

"Some voiturettes tackled the climb in astonishing style. It may be said, in fact, that the behavior of the little cars was the great surprise of the tour.

"Nearing Keswick there was a stiff rise which proved troublesome to the less powerful cars. The steep run down into Keswick required a strong hold on the brakes.

"The triumphant career of the Hon. C. S. Rolls was temporarily interrupted not far from Carlisle by a punctured tire, but he nevertheless reached Carlisle butter market in good time.

"So far there have been no notable absentees from the list of entrants. We have been wholly free up till yesterday from any accidents other than temporary disablements to the cars themselves."

The official figures are published of the times occupied on the hill climbing competition of Monday and yesterday.

So far as Shap Fell is concerned, the only times given relate to the short, steep pitch of one and three-eighths miles, the longer rise being considered too easy for notice. The best times were as follows:

Speed in Hill-Climbing Trials

Mr. Ashby's Empress tricycle, 14.4 miles per hour.

Hon. C. S. Rolls' Panhard car, 13.2.

Ariel tricycle, with trailer, 8.8.

Mr. Butler's Panhard, 8.5.

Two of De Dion's voiturettes, each 7.5.

Mr. Mayhew's Peugeot, 7.7.

Locomobile, 6.3.

Nineteen other competitors ascended it at rates varying down to three miles an hour.

In the Dunmail Raise competition yesterday the best performance was that of the Hon. C. S. Rolls, who ascended seventeen miles per hour.

The Empress tricycle did 15.8; the Ariel quadricycle, 10.8; the De Dion voiturette and Mr. Mayhew's Peugeot locomobile steamer, each 9.7. The Enfield quadricycle did seventeen miles an hour, like Mr. Rolls' car, but had only the driver in front, the passenger having dismounted.

A fair number made the ascent in eight miles an hour speed.

Pilgrimage Reaches Edinburgh

London, May 3.—The motor vehicles taking part in the 1,000-mile trial trip invaded Scotland yesterday.

They reached Edinburgh, their turning point, in the afternoon, and more than 550 miles have now been covered.

The return journey to London will commence to-morrow, to-day being occupied with an exhibition in the Scottish metropolis.

"From Carlisle to Edinburgh," says the Daily Mail correspondent on the tour, "the trip was of a particularly enjoyable nature.

"Berk Hill was a severe climbing trial, and most of the cars performed but poorly, having shed their passengers, even had to be assisted by manual labor, particularly over a one-in-eleven stretch near the top.

A Panhard Shows Best

"The Hon. C. S. Rolls' Panhard did best, averaging sixteen miles an hour. The Ariel quadricycle with a Whippet attachment came next, doing thirteen miles an hour, and the third fastest was the Motor Manufacturing Co.'s tricycle, which averaged twelve and a half miles.

"Forty-five cars in all were timed past the base, and all arrived at the summit and continued on their way to 'Auld Reekie.'

"The locomobile steam car showed up well at hill work, doing 10½ miles an hour.

"At the completion of the hill climb-

ing trial the journey north was continued. The Hon. C. S. Rolls ran into Edinburgh at 5 o'clock, three hours before scheduled time, and the next arrived only half an hour later, the remainder following in quick succession."

Exhibition at Edinburgh

London, May 4.—The lord justice clerk of Scotland, Lord Kingsborough, yesterday opened the exhibition of competing vehicles in the Waverly Market Hall, Edinburgh.

In declaring the exhibition open Lord Kingsborough said that the question of safety did not depend upon a named speed for all the roads, but upon the capacity of the vehicle to be easily steered and stopped.

His experience was that an autocar going at twelve or fourteen miles an hour could be pulled to a stop in less than its own length, and that element of safety was unobtainable in horses.

Speed Up Berk Hill

The following are the official results of the best performances in the hill climbing competition up Berk hill on Wednesday:

The Hon. C. S. Rolls' Panhard, 16 miles an hour; quadricycle, 13.3; Ariel tricycle and trailer, 12.6; Motor Mfg. Co.'s tricycle, 12.6; Enfield quad, 12; Mr. Kennard's Napier, 11.5; Mr. Holder's Daimler, Mr. Friswell's Peugeot, a Century tandem, Locomobile, and De Dion voiturette, all 10.9 each; the Hon. James Montague's Daimler, 10.4; Mr. Matthew's Peugeot, 10; Motor Mfg. Co.'s Triumph, 9.6; Brown-Whitney steam carriage, 8.9; Mr. Hargreaves' Daimler, 8.9; Mr. Brown's Panhard and the Decauville, 8.6 each; Mr. Exe's Daimler, 8.2; No. 37, Daimler, 8; De Dion voiturette, 8; New Orleans, 7.7;

Lanchester, 7.7; Richard, 7.5; Mr. Phillips' Mors, 7.5; Gladiator voiturette, 7.5; and Mr. Liddeley's Daimler, 7.

To Newcastle-on-Tyne

London, May 5.—Fifty motor cars left Waverly Market, Edinburgh, yesterday, to make the initial stage of the homeward journey of the 1,000-mile trial run of the Automobile Club.

The run to Newcastle-on-Tyne was 121½ miles, the longest distance yet covered by the vehicles in one day since they left London.

So far as can be ascertained at the time of writing, only six of the entered vehicles have relinquished the trial, and as three of these are such as should never have been started in so severe a competition, the result up to date speaks volumes for the efficiency of the machines.

Face a Stiff Gale

A strong gale from the southwest blew throughout the day and made stiff work for the lower powered cars.

About sixteen miles from Newcastle the steering gear of one of the big cars failed, but the driver was seen directing its progress by standing upon the step and placing the hollow of his right foot upon the projecting axle box. It was a plucky and trying thing to do.

The condition of the roads throughout was excellent. Better traveling for an autocar than that between Edinburgh and Newcastle, via Dunbar, Berwick, Alnwick, and Morpeth could not be desired.

Newcastle welcomed the automobiles royally, the broad, straight road from Gosforth being alive with spectators.

The vehicles were on show last night in the Drill Hall, and to-day in the afternoon the exhibition is to be formally opened by the mayor of Newcastle.

FROM THE FOUR WINDS

PARIS ARRESTS FOR FAST DRIVING

The French officials, spurred by the opposition to motor-vehicles from certain quarters—opposition which was la-

tent until given the breath of life by the accident in the Paris-Roubaix race as chronicled in the Paris correspondence of the Motor Age—have taken a stand as severe as their previous attitude was lax. On

May 3; according to cable dispatches, no less than forty automobilists appeared in court in Paris and St. Germain to answer charges of excessive speed. There were twenty-nine cases at St. Germain and eleven in Paris.

These numerous prosecutions are described by the papers dealing specially with automobilism as "the war on automobiles." The cases at St. German were all in connection with the Paris-Roubaix road race. All the cases were adjourned to May 16.

In Paris the prosecutions were on account of rapid driving in the streets, the automobilists having been arrested by the recently organized corps of cyclist policemen, whose duty it is to arrest reckless drivers.

Dr. Clado, a man of considerable social position, who was arrested on the Avenue du Bois de Boulogne, was sentenced to two days' imprisonment and fined 10 francs (\$2).

A man named Beaudot was sentenced to one day imprisonment for excessive speed and fined 10 francs for not having his license on him. He contended that when he was arrested he was in the Avenue de Malakoff at eight o'clock in the morning and nobody was in the avenue.

Another automobilist named Cohen, who stated that when he was arrested he was going at a normal speed, without knowing exactly the number of kilometers an hour, was sentenced to one day in prison and fined 10 francs.

The other cases were adjourned for the defendants to produce evidence that their speed was not over the limit.

New regulations have been adopted limiting the speed of motor-vehicles to eight kilometers (five miles) an hour in the urban centers of France by the committee appointed to regulate automobile traffic. This speed is the same as that which applies to the driving of horses.

The Velo publishes an article on the results of the recent police regulations with regard to automobiles and declares that if persisted in they will kill automobilism and the automobile industry.

It has sent one of its staff to interview the chief automobile manufacturers with a view to finding out if their business

has been adversely affected by the new regulations.

M. Caze, director of the Gladiator company, declared that so far he had not noticed any appreciable effect on the orders received by his firm.

MM. Ouzon declare that they, too, have seen no falling off in business. Some of their customers, however, have expressed a fear that they might get into trouble with the police in regard to races. They are against their suppression as they are generally successful.

M. de Dion, they declared, was in favor of races as long as his machines won, and now he was against them because they were defeated.

"This, however," said M. Ouzon, "is only human."

M. Bruel is of the opinion that to the exposition is due the falling off in orders of late.

People, he said, expect marvels from the automobile exhibition at Vincennes, and have postponed ordering machines till they should be able to choose from those on view.

The Societe Parisienne holds a similar view, but is of the opinion that the new regulations have also something to do with the want of activity in the automobile industry.

M. Hertel stated that there had been no falling off in orders, but that customers were less anxious to get immediate delivery of their machines in the hope that the present difficulty with the authorities would blow over.

M. Mouter, of Mouter et Cie, the well known dealers, declares that his firm is suffering severely from the present state of affairs and that they are doing less business than in the winter time, especially in the hiring out of automobiles.



FAILS TO REACH DAWSON CITY

E. Jean DeLamerre, the Parisian who started from Skagway with an automobile which he proposed to take to Dawson, returned May 4, on the steamer Amur, having failed in his attempt, says a newspaper dispatch from Victoria, B. C. He got to Atlin without great difficulty, but found it very difficult going down the Yukon. He was finally forced to abandon

THE MOTOR AGE

don the trip, as the river was breaking up. DeLamarre said he was in no way discouraged by his failure to reach Dawson, as he found the automobile he had was unsuited for the trip. The horsepower was not sufficient and the carriage was too low, touching the ground in rough places. He intends to have one specially constructed for these trips and believes it will revolutionize winter travel.

Another dispatch from Seattle, Wash., says: Way up in the Atlin mining district in Northwest territory they have the automobile fever. It even ranks in interest with mining. L. H. Griffith, a well known business man, has arrived in Seattle from Atlin. He says that a Frenchman named Lamar arrived in Atlin recently with an automobile, which he used on Atlin lake, much to the wonder and admiration of the miners. The machine went flying around the lake at the rate of twenty miles an hour, and inhabitants of the district came rushing in to see the strange machine with the eagerness of boys going to a circus.

EXTENDS ITS CAB SERVICE

Philadelphia, May 7.—Within a fortnight the Baltimore & Ohio railroad will establish in this city an electric vehicle service similar to that which it now operates in the national capital. It will be made up of coupes, cabs and hansoms, and will eventually entirely supersede its present system of horse-drawn vehicles. Each of the conveyances will bear upon its sides the words, "Baltimore & Ohio Railroad," in gilt letters, and the operators will be attired in the standard uniform of the company. It is the intention of the company to establish at its station at Twenty-fourth and Chestnut Streets a bureau of information in connection with the new service.

Several members of the Century Wheelmen, the crack cycling organization of Philadelphia, if not of the country, have purchased automobiles or motor-cycles, and in the near future will endeavor to bring about a change in the by-laws which will permit the storage of their vehicles at the big Broad Street club-house. There is ample space in the immense wheel room for the storage of at least fifteen of the self-propelled vehicles,

and the interest of the members generally in the new method of locomotion is increasing so rapidly that the board of governors of this progressive and prosperous club may soon see the wisdom of granting the request of the automobilists contingent.

SPEED OF AUTOS IN COLUMBUS

The owners of automobiles in Columbus, Ohio, have organized to protect their interests in the matter of regulating the speed of these vehicles in the city. Some of the city officials are in favor of limiting the speed of automobiles to six miles an hour, the maximum at which a horse attached to a vehicle may be driven. The automobilists think this restriction would be severe, and have declared for a maximum of twelve miles an hour. They argue that the automobile is so easily handled and can be stopped so quickly that it can be run at a higher rate of speed with reasonable safety than any other kind of a vehicle.

One newspaper believes that the plan upon which the speed of street cars is regulated will be found applicable to automobiles. Under the existing ordinances the speed of cars in the business sections of the city is limited to eight miles an hour and in the outlying sections, where the streets are less used, to fourteen miles. The public will hardly consent to a higher rate of speed for automobiles on the crowded thoroughfares than is allowed for street cars.

SENSATIONAL STORY DENIED

New York, May 5.—A sensational story is published today in a local daily of decided pro-horse and alleged anti-auto proclivities for advertising reasons that the board of trustees of the village of Springfield, L. I., would attempt to stop the run of the Automobile Club through that hamlet today, owing to a protest of the Farmers' Co-operative Union.

"Why, that's simply nonsense," said a member of the club last night. "The club has no intention of holding a race tomorrow, but simply an ordinary run at an eight or ten-mile pace to Babylon. We have no races scheduled for Long Island or any other place, and the only race we have held was not objected to by resi-

dents of the towns through which it passed.

"In fact," he continued, "it was evident that the residents were very much in favor of the contest taking place on the Merrick road, for it not only furnished them with an unusual spectacle, but brought more money into the several villages en route than probably had been left there for many a day. I do not see how it will be possible to stop our club run so long as we do not exceed the speed limits of the localities through which the run passes. If the run be stopped or any member be placed under arrest, a test case will be made by the Automobile Club."

New York, May 5.—Only three members showed up at Astor Court this morning for the Babylon run of the Automobile Club of America and the route was changed to the Morris Park races. At the club tonight the members laughed at the idea that the small attendance was due to the alleged but highly improbable threats of the Long Island farmers to interfere with the speeding of the vehicles on the Merrick Road.

NAT GOODWIN A VICTIM

Syracuse, May 4.—C. Arthur Benjamin, an erstwhile cycle racing man and formerly active in the Olive Wheel Co., has abandoned the old love for the new and become an auto fan of the most virulent type. He now is at the head of the Syracuse Automobile Co. and has fitted up luxurious headquarters, with club and storage facilities, for the sale of Locomobiles, whose distributing agent he is for fourteen counties in that part of the state. He has already sold twenty-one vehicles and has put in a standing order for twenty-five a month and will have them or know the reason why.

"The automobile business is to the bicycle trade what an elephant is to a fly," said he to a Motor Age traveling man in the full frenzy of his new born enthusiasm.

A good story of the hustling and winning qualities of the irrepressible and altogether irresistible Benjamin is going the rounds of Syracuse, but has not hitherto found its way into print.

Nat Goodwin came to town and "Ben" thought it would be an act of hospitality and a good advertising play to give him a ride in a Locomobile, so he called for him at the theater one afternoon.

"Much obliged, old man," said Nat, "but I've got to hurry back to dinner in my car at the station at half past five o'clock or my wife will read the riot act."

"Well, jump in and I'll hurry you down," answered "Ben."

"It's a go," quoth Nat.

The easy running of Ben's tongue and Loco soon had the popular comedian hypnotized, and it was nearly half past seven when the pair "pulled up," or rather "whistled down brakes," at the parlor car.

Nat's good wife, the beautiful Maxine Elliott, greeted him in a state of mind and proceeded to hand him out a lecture that reminded him of "curtain" at eight o'clock.

"Now, don't talk, my dear, but just get in with my friend Benjamin and have a ride."

Like a dutiful wife, she obeyed.

At eight o'clock curtain was not rung that night. The audience sat and fumed, imagining all sorts of vain things anent the festive star comedian until 9:45, when the curtain rose, disclosing Nat clothed and in his right mind.

"Say, Ben, I've got to have one of those."

"Sorry, but am all out, Nat."

"Then I've got to have that one."

"But what are you going to do with it?"

"Take it along, of course. Why, it won't cost more than \$25 a day for a special car for it, and it's worth that in the fun, and I want you to send along a man to teach me how to run the thing."

The Loco engineer writes Benjamin that this living in a hotel car by night and driving around his bosses by day is the softest snap he has struck yet.

MOTOR-CARS FOR AUSTRALIA

Sydney, Australia, March 26.—A. Shadler, the biggest baker doing business in New South Wales, intends, in future, to deliver his bread to customers by means of electrically-propelled motor-cars. He

has written to several of the municipal councils of Sydney asking their permission for the motors to run in the streets and permission has been granted in every instance. Mr. Shadler pointed out in his letters that the use of the motors would mean a decrease in the wear and tear on the roads and that they would also bring a great sanitary improvement. Shadler at present runs fully fifty carts in Sydney and the use of motors will mean a great saving to him and get through the work much more expeditiously.

Everyone is struck with the novelty of the idea. Since the news that Shadler intends employing motor-cars has been published there has been a lot of enquiries at the cycle depots with reference to motors, from butchers, bakers and other tradespeople. If Shadler's motors show well he will add fifty for Sydney. He is one of the leading men and others are sure to follow. The motors have not yet been landed. The Austral Cycle Agency say that several Sydney business men have dropped into their depot enquiring about motor-cars since Shadler's idea was made known.

W. J. C. Elliott, the proprietor and manager of the Sydney Austral Cycle Agency, has returned to Sydney after a six months' sojourn abroad. He had a good time while abroad and visited both the English and the French cycle shows. He secured from the De Dion British and Colonial Syndicate their agency for the whole of Australasia. He intends turning his attention largely to motor-cars in the future.



AUTOMOBILE CLUB RUNS

New York, May 5.—The committee on runs and tours of the Automobile Club of America sends the following announcement to the Motor Age's New York office:

"The Turf and Field Club has invited the members of our club to attend the Morris Park races on May 12, and has offered us the courtesies of their club house. The automobiles will be parked alongside of the track. Badges for the members and their friends and servants will be issued at the Waldorf-Astoria at 12 o'clock. Lunch, costing \$2, will be served at the club house of the

Turf and Field Club at 1:15 p. m. The races commence at 2:30 p. m. The meet will be at the Astor Court at 12 o'clock. The start will be at 12:15 p. m. The route will be up Fifth Avenue to One Hundred and Eleventh Street, thence to Seventh Avenue, thence to the Macomb's Dam Bridge, thence via Jerome Avenue to Morris Park. Distance about twelve miles.

"It having been thought that the run to West Point is too long, the committee has changed the destination to Nyack. The meet will be at the Astor Court at 8:45 a. m. The start will be at 9 o'clock sharp. The route will be up Fifth Avenue to One Hundred and Eleventh Street, thence to Seventh Avenue, thence to Macomb's Dam Bridge, thence via Sedgwick Avenue to South Broadway at Kingsbridge, thence via Broadway to Tarrytown, thence by the 12 o'clock ferry to Nyack. Lunch will be served at George Bardin's at 1 p. m.

"It is understood that all runs and tours are to be paced by a member of this committee called the captain, and that no automobile is to pass him until the Harlem River is crossed or the limits of Long Island City are passed."



FAIRMOUNT PARK OPENED

Philadelphia, May 7.—The Fairmount park commissioners on Thursday last unanimously voted to extend the territory in that popular pleasure ground into which automobilists may journey. Belmont and Woodside park and the roads leading thereto are, as a result, no longer within the "dead line," and our Quaker "chauffeurs" and motor-cyclists are correspondingly happy, and indulge the hope that ere long the embargo will be entirely raised. Not a single accident due to self-propelled vehicles has occurred in the park up to date.



AUTOMOBILISM IN GERMANY

A pretty little tale comes from Vienna. The editor of a daily paper wished to cross the ferry at Melk on the Danube with his six H. P. motor-car. This desire caused no little trouble to the boatman who issued the tickets, for the tariff included no fee for automobiles, although

it dealt with the fees for horses, oxen, hand-carts, pigs and other miscellanies. Had the ferryman known the motor possessed the power of six horses he would probably have charged accordingly and run up his bill to about a dollar and a quarter. As it was, after much and deep reflection, he made out a ticket for five cents, charging him for a "hand-cart, laden, drawn by hand."



AN AUTO AS A SHOW BOOMER

The head of a well known minstrel troupe uses an automobile as a show

boomer in a novel way. His advance agent has it announced in the local papers that all who desire may have a free ride in the automobile. In the small towns the automobile is a great curiosity and its coming aroused public interest, the show thus gaining inevitable and direct advertising.

A feature of the Milwaukee carnival, June 26 to 29, will be an automobile parade, displays of fast automobile driving and fancy driving by experts. There will be automobiles of every size and description.

MOTOR RACING AND MOTOR PACING

AMERICAN BUYS DE KNYFF'S RACER

New York, May 8.—A Paris cable says that Albert Bostwick of the Automobile Club of America has purchased the racing car in which Rene de Knyff broke the world's record, winning the road race at Pau and the Nice-Marseilles contest. In the former race De Knyff covered 209 1-4 miles in 4 hours 46 minutes and 57 seconds, an average of nearly forty-four miles an hour. At one stage of the contest he covered 34½ miles in 33½ minutes.



MAKES A MOTOCYCLE RECORD

Philadelphia, May 7.—On Wednesday last Edward W. Burk, of Wanamaker's automobile department, mounted on an Orient gasoline tricycle, took a try at the Philadelphia-Atlantic City bicycle record of two hours forty-eight minutes. The roads were soft and there was a strong head-wind, but he negotiated the course in two hours forty minutes even. The next day Burk did the return trip in two hours twenty-six minutes. When the roads harden sufficiently he will put the record under two hours without much trouble, as his unfamiliarity with the route lost him some little time in addition to the reduced speed necessitated by the numerous bad spots in the roadway.

"Bob" McCurdy, the well known local racer who is now Philadelphia representative of an out-of-town steam automobile manufacturing company, has a tandem bicycle made by the company and credited with a 1:18 mile, with which he and a companion "intend to knock Burk's record to smithereens." The Atlantic City route is peculiarly adapted to automobile and motor-cycle racing owing to the comparative lack of turns and the excellent condition of the roadway in pleasant weather, besides which there isn't a rise on the whole route which can be dignified by the name of "hill."



COLORS IN INTERNATIONAL RACE

The sport committee of the Automobile Club de France met May 4, which tends to prove that it has not abandoned all hope of continuing automobilism as a sport, says a cable dispatch to the New York Herald.

It sent out a request to the various clubs which have entered for the international cup to send in the names of their delegates.

Comte de Chasseloup-Laubat was appointed delegate for the Automobile Club de France.

The following colors have been adopted for the various vehicles: Blue for

France, white for Germany, red for America, and yellow for Belgium.

MM. Giraud, Georges, Huillier and Loysel were elected members of the sport committee.

It was further decided that vehicles taking part in the course de l'eventail—if it takes place—will have to be driven or accompanied by a member of the Automobile Club or of a corresponding club, and that the entries should bear the name of the competitor and not that of the builder of the automobile.

Entries have been received for the touring competition which will be held on May 14 next.

BIG MEETING AT TURIN

At the first day of the Turin (Italy) automobile tournament, Marcellin, the Frenchman, captured the two most important events. He won the seven kilometers hill-climbing contest in 6:45, a speed of sixty kilometers (37½ miles) to the hour. Marcellin won the hill-climbing contest for double-seated motorcycles with the same machine on which he had made the trip from Paris to Turin on the road. In the two-seated voiturette class, weighing less than 400 kilograms, Clerissy won in 15:42. Stead won the race for the same style of vehicles weighing more than 400 kilograms, in 9:28. In the four-seated vehicle class, Chauchard won in 15:20, while Gondoin was second in 23:26.

The second day's meeting was also a great success. Gaste won the 130 kilometer road race, for the single seated motorcycle class, covering the distance in 1:57:15, a speed of more than forty-one miles to the hour. Marcellin won the race for the two-seated quadricycle class, making the course in 2:17:33, which is splendid. In the class of two-seated voitures under 400 kilograms, Storeno won in 2:55:25. For the same style of vehicles over 400 kilograms in weight, Cuchelot won in 2:12:17. With a four-seated vehicle Chauchard won in 2:41:20.

NOTES OF INTEREST

McFarland, the big Californian, intends to wait for a time before purchasing a motor. He had two but sold one and has his 1½ Orient-De Dion motor left over. This he is using in training and finds it fast enough.

When he gets ready to enter races he will know better what the fastest motor tandem of the year really is and he will then pay liberally to secure it.

Waller and Stafford won the motor tandem race at Fall River, Saturday afternoon last, on their Orient machine, fitted with a 2½ inch horsepower motor. There were two other 2½ horsepower tandems pitted against them.

Charlie Miller, the long distance champion and a prominent aspirant for the paced championship this season, has no love for the south. Miller arrived in New York last week and took up his quarters at Manhattan Beach where he will prepare for the season.

Motor tandems have brought back into the games many of the notable riders of old, including Michael, Starbuck and Titus. For Starbuck is working like a Turk out at Marlon, Iowa, and will be found behind pace on May 30. Titus is nearly matched to ride Starbuck on that date. Michael will make his appearance upon the same date.

Jimmy Michael is preparing for his season at Charles River Park, Boston, where he has ridden more notable races than any other rider with the exception of McDuffee. Michael is being trained by "Doc" Morrow, who had Eddie Bald in '98. Morrow is one of the hardest working trainers in the business and believes that in six weeks he will have his charge ready to go better than ever before.

Wm. A. Rutz, the New Haven rider, is a plucky man at his work. He is a willing worker and goes about his preparation for the middle distance racing of the season in the right way. He is at it earlier than the others at Fountain Ferry going strong unpaced. When the others come out he joins with them and after they finish he puts his head down and goes for all that is in him for four or five miles unpaced. He takes his work back of the motor, ten to fifteen miles, only after doing as much work as any of the sprinters.

Throughout Louisville the first motor tandem contest of the season was the talk with every one interested in cycling. That last lap in :30 was a wonder and revelation to the many who wanted to see fast time. The neck and neck struggle for the entire third of a mile finish at a 1:30 gait caused wonder and the fight to the tape was so unquestionably pure sport that the people rightfully went wild over it. Yet these men had 1½ and 2½ horse power motors and the last lap was doubtless a case where they travelled right up to the speed limit of the track.



Catalogues

Pamphlets....Illustrations

CHE MOTOR AGE is prepared to compile, edit, illustrate, and prepare for the printer prospectuses, catalogues or any matter for public distribution—and to do it well.

The advantage of having this class of work done by men who not only know the craft of printing and advertising, but who are versed in the technicalities of the motor-vehicle business, is apparent.

To say the right thing in the right way is the secret of successful advertising.

This the Motor Age can do for you.

Striking and tasteful effects can be obtained without extravagant expenditure by the man who knows how. The Motor Age men know.

One thousand catalogues properly gotten up will bring more business than ten thousand of the ordinary kind.

The motor-vehicle appeals to people of wealth and refinement. Printed matter ill-prepared and poorly illustrated will not appeal to them.

CORRESPONDENCE SOLICITED

THE MOTOR AGE

324 Dearborn Street, CHICAGO, ILL., U.S.A.

No limitation to the motors was necessary and all the speed of the men themselves was called into play for every inch of the finishing third of a mile. Old timers went wild over the finish.



Johnnie Nelson, the clever amateur of last season, will be trained this year by L. O. Pickard, who had charge of Jimmy Michael in '97 when the youngster, under the management of Dave Shafer, was cleaning up the field. Nelson is matched to meet Charlie Porter of Detroit at the Chester Park Track, Cincinnati, next Sunday in a twenty-five mile paced race and he will meet Harry Gibson in an hour race at Montreal on May 24, the winner to meet Michael on July 1.



In stature the followers of motor pace vary as much as the bicycles they ride. There are for instance Michael, Gibson, Waller Smith and others of diminutive build and McFarland, Caldwell and others who are very large men. McFarland is slim built and Caldwell is a giant among the pace followers, a man of six feet three or four and weighing well above the two hundred mark. McFarland will weigh about 190 and Michael about 103. Yet all of these men use gears up to 120 with equal ease.



Kenneth Skinner sailed from New York last Saturday for Europe on the St. Louis. While in Europe he will endeavor to arrange for the location of a factory in this country for the manufacture of an American De Dion motor. Skinner is not at all satisfied with the result of his match race with C. G. Wridgway, the Englishman, who sailed with him for Europe. Wridgway said before leaving that he would return in September when he will give Skinner a return match race. In July after his return Skinner will attempt to do forty miles in the hour on the track and will also try some city to city

record breaking. He now holds the Boston to New York record of seventeen hours.



Although motor cycle racing is to be added to the multitudinous work of his office, and although all the cycle racing of America will be under his eagle eye, Chairman Batchelder believes that the cares of his office will be hardly as heavy this season as last, owing to the arrangement by which the eight divisions of the country are placed so entirely in charge of the chairman of the division boards. Mr. Batchelder anticipates a working day of from twelve to fifteen hours, which is more than most men would care to undertake for an entire season of racing.



In the races which were held in Crystal Palace, London, on Easter Monday the three principal events were won on tricycles fitted with the Aster motor. The most important event was the Crystal Palace Brassard, which was won by C. Jarrott on a Phoebus, fitted with the Aster motor; the distance covered being thirty-eight miles 868 yards, breaking the record recently made by Beconnais at New Britain. In the five mile motor race F. F. Wellington, mounted on a Gladiator likewise fitted with the Aster motor, won the first prize and in the ten mile scratch Jarrott won first and Wellington second.



Earl Kiser, the Dayton Demon, is going into middle distance racing. His chum, Tom Cooper, the champion, is authority for this. Cooper and Kiser have just ordered the fastest motor that it is possible to make. In regard to Kiser, Cooper said "He is great behind pace and with my assistance on the back of the pacing machine you will see Earl laying down the miles just as fast as any of them. He is about the right size, lays down to his work well and is plucky beyond a doubt. He will be popular with the masses."

NEWS OF THE MOTOR INDUSTRY

YORK STATE TRADE NEWS

New York, May 5.—A Motor Age man, just returned from the big western New York cities, brings back with him some interesting trade notes.

Foster & Co., of Rochester, are devoting their whole time now to their steam vehicles. They have turned out already twenty-five of their steam runabouts, which sell for \$750; have fifty more un-

der way and have ordered parts for seventy-five more. Mr. Foster was in New York last week and has been in Canada the latter part of this week.

The Apex Wheel Co., of Rochester, is now paying considerable attention to automobiles and has just finished its first gasoline motor.

The Buffalo Gasoline Motor Co. is getting out motors in satisfactory quantities, and has just completed a carriage for its

Automobile Patents Exploitation Company

UNDERTAKES

The manufacture of Automobiles and Motor-Cycles.
The examination of Automobile patents.
To enlist capital for the development of inventions.

FURNISHES

Specialists to make thorough examinations of patents.
Experts to test motors and automobiles.
Opportunities to inventors to present properly their propositions to concerns willing to consider and to undertake the same.

PURCHASES

All meritorious patents, licenses and inventions relating to motor-cycles, motors, gears, automobiles and their parts.

F. B. HYDE
Secretary

**AUTOMOBILE
PATENTS EXPLOITATION
COMPANY, 27 William St., New York, N. Y.**

"THE PERFECT AUTOMOBILE"

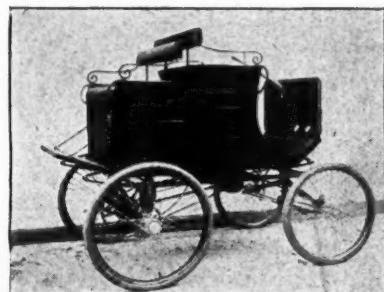
Baldwin (steam) Automobiles

\$600 — \$800 — \$1200 — \$1500

IT WILL CLIMB STEEP GRADES
COAST

IT WILL REVERSE
RESPOND QUICKLY

IT WILL CARRY YOU SAFELY
BRING YOU HOME



No Visible Exhaust

We use fully 75 per cent of the heat of the exhaust while other makers discharge it.

GOOD
AGENTS
WANTED....

AUTOMOBILE DEP'T
SLAYMAKER-BARRY CO.
CONNELLSVILLE, PENNA.

own use to exhibit the motor in operation.

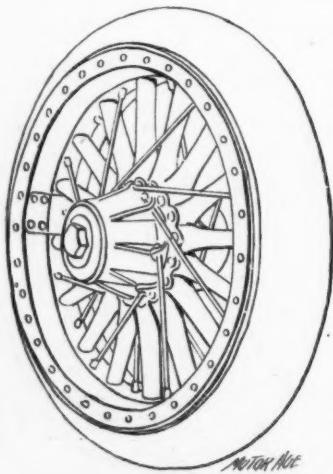
The Century Motor Vehicle Co., of Syracuse, anticipates being ready to deliver vehicles by the middle of June. Its catalogue will be ready next week. It has a well equipped machine shop, occupying a four-story factory building.

The New York Automobile Co., of Syracuse, has two experimental vehicles running and is doing its preliminary machine work at the Lipe Machine Co.'s plant.

President Gridley, of the Olive Wheel Co., is interested in developing a new steam rotary motor.

ESTY AUTOMOBILE WHEEL

In the construction of motor-vehicles there has been found no more perplexing detail than that of providing wheels that will stand the stresses to which the wheels of such vehicles are subjected.



There are some advocates of wood wheels and others who favor suspension wheels.

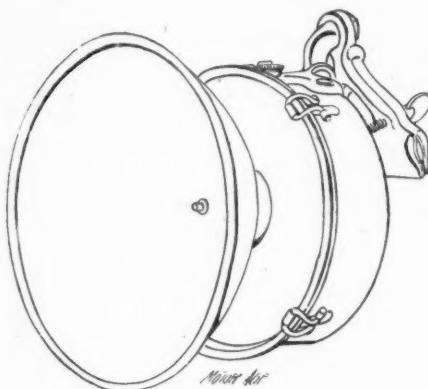
William Esty of Laconia, N. H., has combined wood and wire spokes, the wood ones to carry the load and support the side stresses and the wire ones to take up the torsional strains.

The hub is metal and is webbed so as to get the greatest strength with the least weight of metal. The rear hub is flanged to receive gear, band brake or sprocket wheel, and, being true with the bore, it

runs loosely in the dust case packing flange, thus affording protection to the gearing, chain or band brake from sand and grit. The bore of the hub is of the right size to receive roller bearings.

AN ATTRACTIVE LAMP

The accompanying illustration shows an acetylene gas lamp for automobiles which is made by A. H. Funke of 101



Duane street, New York, and marketed under the attractive name of "the Autolyte." The maker claims that the lamp will light the road for a distance of 100 to 150 feet ahead.

LARGELY CAPITALIZED COMPANY

The Cosmopolitan Power Co., with a capital of \$40,000,000, was organized in Jersey City recently with these directors, who are for the most part Chicago men: Gomer E. Highley, W. W. Gurley, H. M. Carter, J. F. Hemingway, D. S. Hank, E. P. Compton, Adrian H. Larkin and Charles N. King. The company is to manufacture automobiles for the West.

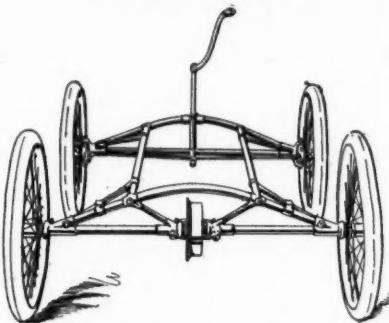
Gomer E. Highley, secretary of the American Linseed Co., said that he was not in a position to give details at present concerning the Cosmopolitan company, but that the report was correct as to capitalization but not in regard to the statements that the company was specially allied with the automobile interests in New York.

"Nor is it incorporated," said Mr. Highley, "for the purposes of manufacturing

WHY BOTHER

To Build RUNNING GEARS?

Save time, experiment, expense and trouble by buying ours complete.



They are ready for enameling and wheels and will take any carriage body with springs, motor, tanks, etc.

— WRITE US —

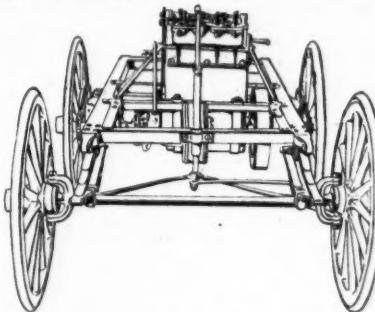
MILWAUKEE AUTOMOBILE CO.,

19th St. and St. Paul Avenue,

MILWAUKEE, WIS., U. S. A.

RUNNING GEAR COMPLETE

With wheels, solid or pneumatic tires, transmission gear, giving two speeds forward and reverse, and our $4\frac{1}{2}$ -horsepower, four-cylinder, shifting spark, gasoline motor, having variable speed from 100 to 1,500 revolutions a minute. The addition of a body, gasoline and water tanks, upholstery and paint makes it a complete vehicle capable of going anywhere and at any speed up to thirty miles an hour. Read complete description in Motor Age of April 12, 1900.



Send for catalogue of the best motor in any country, made in various sizes and number of cylinders, upright and horizontal, with fuller particulars of running gear.

BUFFALO GASOLINE MOTOR CO.

Dewitt and Bradley Sts. BUFFALO, N. Y.

THE time-tried **SOLAR** was the pioneer and has always been the leading acetylene lamp. That is why you are "sure of it" if you get a

Solar Automobile Lamp

The same scientific principles are carried out which have made the Solar bicycle lamp a *Synonym of Acetylene Success*. The dealer who wants the best will sell the **SOLAR**.

BADGER BRASS MFG. CO.
KENOSHA WIS.



automobiles for the West. The Cosmopolitan Power Co. will have plants in various parts of the country, and supplying automobiles will be only one part of its business."

ST. LOUIS ELECTRIC AUTOMOBILE CO.

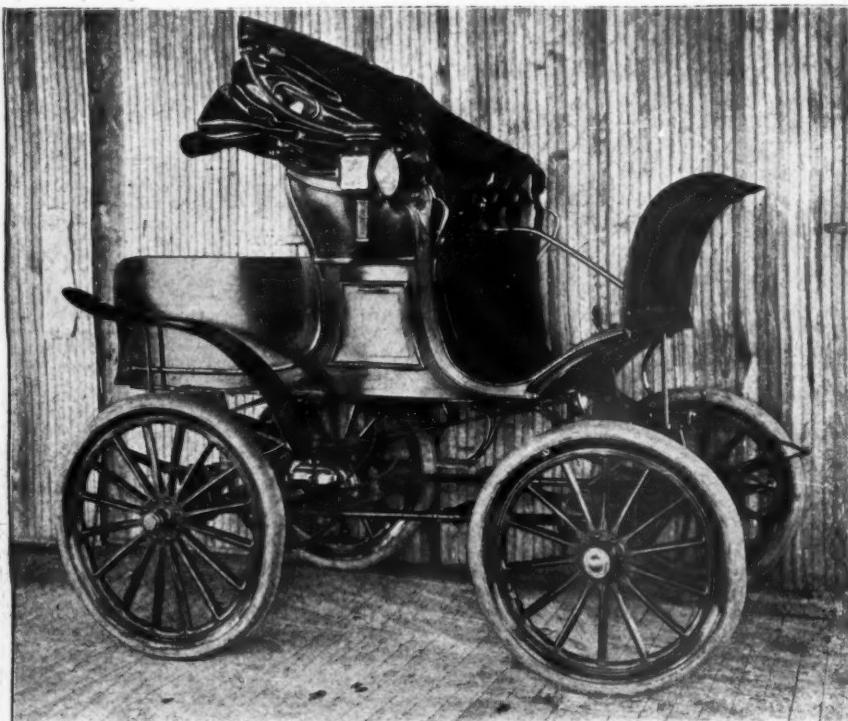
The accompanying illustration shows an electric stanhope recently turned out by the recently formed St. Louis Electric Automobile Co., of which Joseph A. Graham is president; F. E. Bush, secretary; J. R. Lemmen, treasurer, and A. L. Dyke, engineer.

ance. The company also has a lot of electric runabouts under construction.

REEVES' TIRE RETAINER

New York, May 5.—Al. Reeves, formerly manager of Manhattan Beach track, now secretary of the Blaurock Carriage Co., has a patent for fastening solid tires to rims of carriages and motor vehicles, which he believes will revolutionize this feature of wheel construction. Those who have seen it declare it to be far ahead of any previous methods.

The standard method is to run a wire



ST. LOUIS ELECTRIC AUTOMOBILE CO.'S VEHICLE.

The vehicle wheels are made with Grant roller bearing hubs to the front wheels and those of the Automobile Supply Co. in the rear, the latter being of brass and cast steel milled for the reception of the wood spokes. The wheels are fitted with three-inch Diamond tires. Much is claimed for the battery, which is said to have a large mileage capacity and long life. The vehicle is geared to twelve miles an hour. It is tastefully finished and presents a very attractive appear-

or a pair of wires through the tire and weld them electrically at the ends. Another more recent method is to bring the wires through the rim and fasten them with a nut.

Reeves joins the ends of the steel tape with a keystone device that makes removal easy and prevents positively pulling off. No nut shows on the inner side of the rim, the dovetail device being sunk in the rim and not showing in the outside at all. Reeves has secured a patent and

HOT AND COLD ROLLED STEEL STRIPS

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15 Platt Street

GEO. NASH & CO.

CHICAGO OFFICE:
21 South Clinton Street

DROP FORGINGS!



We are in position to turn out special drop forgings to your blue prints on short notice.

May we hear from you?

**VAN WAGONER & WILLIAMS
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WE MANUFACTURE

SPROCKET WHEELS

in all sizes and thickness, for any pitch chain; also miscellaneous parts for

Bicycles and
Automobiles.

PETER FORG, - SOMERVILLE, MASS.

Malleable Castings

Will Not Harden in Brazing...

Bike Steel Castings

CARBONIZED BIKE STEEL CASTINGS

Will Temper Like Tool Steel.

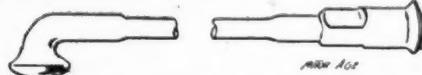
ACME MALLEABLE IRON WORKS, Buffalo, N. Y.



High
Tensile
Strength

SPOKES

We manufacture Spokes for Automobiles.



EXCELSIOR NEEDLE CO., Torrington, Conn.

WESTERN OFFICE, 40 DEARBORN ST., CHICAGO

We are prepared to make
all kinds of
FOR AUTOMOBILES AND MOTOR BICYCLES

REED & CURTIS MACHINE SCREW CO.

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GASOLENE MOTORS

VARIABLE SPEED CLUTCHES

For the BEST write to

EMPIRE MOTOR WORKS

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AUTOMOBILE RIMS

ALL SIZES PROMPT DELIVERIES

DRAKE MFG. CO.
MILWAUKEE, WIS.

AUTOMOBILE WOOD RIMS!

28-inch to 36-inch for 2 inch to 4-inch Tires

FAIRBANKS-BOSTON RIM CO., Bradford, Pa.

ATLANTIC TUBE CO.

WELDLESS
STEEL
TUBING
FOR
AUTOMOBILES

CHICAGO PITTSBURGH NEW YORK

some of the big tire makers are negotiating for it.

EMPIRE AUTOMOBILE CLUTCHES

The accompanying illustrations show a clutch made especially for automobiles by the Empire Motor Works, 898 and 900 Washington Street, Buffalo, N. Y.

Fig. 1 shows two of the clutches assembled on a shaft and Fig. 2 the component parts of one clutch, illustrating for-

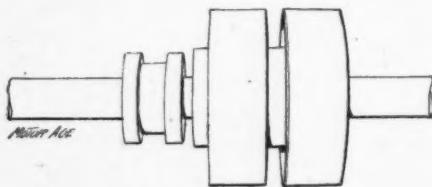


Figure 1.

cibly the few parts and the simplicity of construction. The device is patented.

Referring to Fig. 2, A is the driver keyed solidly upon the shaft. B1 and B2 are shoes hinged loosely upon A. When B1 and B2 are assembled on A, C slips

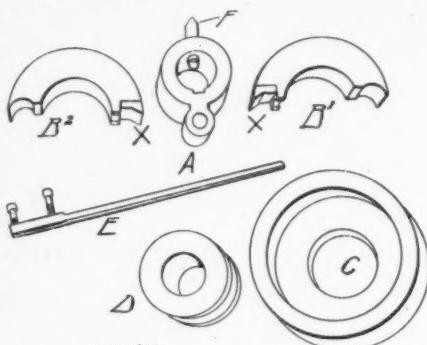


Figure 2

loosely over the whole. The spreading pin F, fitted loosely in A, is pressed by shifting the key E against the hardened tool-steel piece X, causing B1 and B2 to grip tightly against the inner wall of C. D slips loosely upon the shaft and is se-

cured to E by the two screws shown and is used to manipulate the clutch.

Centrifugal force can not interfere with the working of the clutch, as the parts B1 and B2 are held tightly against A when the clutch is released.

Fig. 1 shows two of the clutches mounted on a shaft, with shifting for one speed forward and one back.

Single clutches, with shifter, are furnished for \$20, double clutch with shifter for \$35, and triple clutch with shifter for \$50.

THE DURYEA POWER COMPANY

The Duryea Power Co., of Reading, Penn., has lately increased its capital to \$100,000.00 and has moved into permanent quarters at North River and Hockley streets. Here they have 10,000 feet of floor space, well lighted, ample power, with testing ground for their vehicles in the rear and anchorages for their launches on the canal in front.

The officers of the company are Herbert M. Sternbergh, president; Chas. E. Duryea, vice-president; Henry Millholand, secretary and treasurer, and their goods are being built under license from the Duryea Mfg. Co., of Peoria, Ill. This arrangement secures to this company the latest improvements, as well as the services of Chas. E. Duryea, the pioneer gasoline motor-vehicle builder of this country, which is a sufficient guarantee that the vehicles will be thoroughly first-class.

Work has already been pushed forward in temporary quarters with the Reading Cycle Mfg. Co., so that the first lot of vehicles will be finished early next month.

The Duryea system combines many details found valuable during the past ten years; such as triple cylinder motor, central controlling handle, hill climbing gear and many other features adding to the value of the vehicle while securing reliability and increased simplicity.

Gasoline Engines!

OPPOSED CYLINDERS,
BALANCED TYPE.

Latest, Most Compact Design for Vehicles & Launches
4 to 12 H. P. : Blue Prints, \$1.

A. W. KING, 71 W. Jackson St., Chicago, Ill.

For Motor Vehicles

Dixon's Pure Flake Graphite Lubri-
cants for Engine Cylinders, Chains,
Gears, Bearings, etc. Nothing can
equal them.

JOSEPH DIXON CRUCIBLE COMPANY
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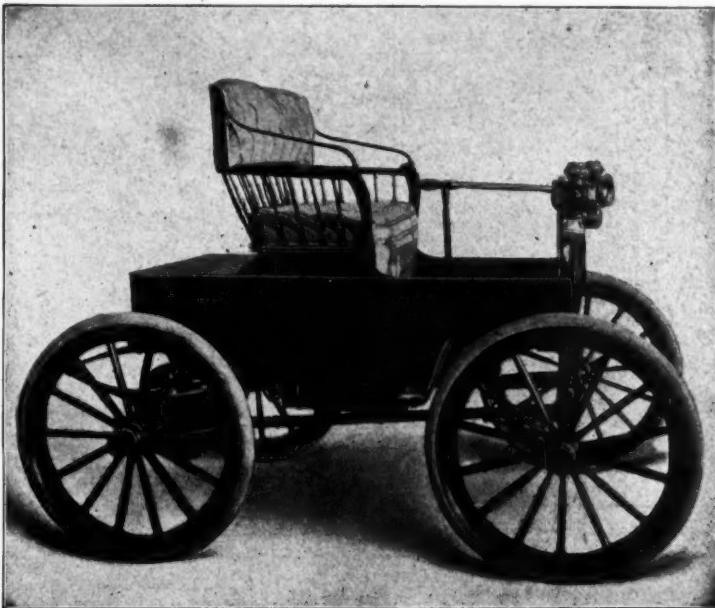
THE "WINNER" RUNABOUT

PRICE, \$700

Driven by a
3-H. P. Gasoline
Engine.
Easily understood;
Easily operated;
Easily kept in
order.
We also make the
"Elgin" Electric.

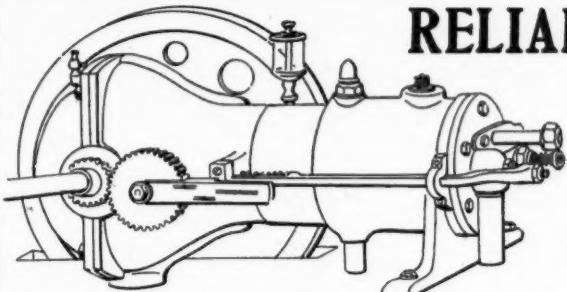
**ELGIN
AUTOMOBILE
CO.**

325 WABASH AVE.
CHICAGO



RELIABLE MOTORS

FOR AUTOMOBILES



Working parts enclosed.
One oil cup for all bearings.
Perfect ignition.
Cheap running cost.

We also make transmission and
running gears.

St. Louis Gasoline Motor Co., - 822-824 Clark Ave., St. Louis, Mo.

GASOLINE ENGINES!

IMMEDIATE DELIVERY We have a few Five H.P. Gasoline Engines which we can ship immediately on receipt of order. Single cylinder and complete in every respect. Price, \$225.
We make the best Running Gears on the market. All kinds of wheels, roller bearings, wire wheels, tires, etc. Send 2c for Bulletin No. 1.

AUTOMOBILE SUPPLY CO OFFICE:
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COLD
DRAWN
SEAMLESS
STEEL
TUBING**

Shelby Cold Drawn Steel Tubing is manufactured from the best quality of Open Hearth Steel.

In the manufacture of Cold Drawn Tubing it is necessary to use the most carefully selected material, free from all physical imperfections, such as laps, seams, and blow holes.

Shelby Tubes are very tough, dense and exceedingly ductile.

There is no tubing manufactured that will meet the requirements for Automobile construction as will the Shelby Seamless Cold Drawn Tubing.

Best for use in Frames and Hollow Axles, Piston Rods and Cylinders.

Ask for Price List "E" for full information on all Mechanical Tubing.

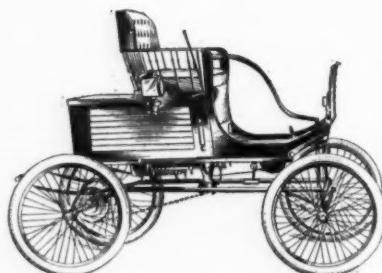
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**THE "Locomobile" COMPANY
OF AMERICA**

11 BROADWAY : : NEW YORK

**Speed
Safety
Economy**



Style No. 2. \$750—F. O. B. Factory.

**Comfort
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There are 800 "LOCOMOBILES" in actual use—all giving excellent satisfaction.

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